

Advanced Materials Science & Nano Technology: Nanomaterials for energy applications: Present and future - Daniel Choi - Khalifa University, UAE

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Abstract

When we look at one's career progression today, it goes something like this. Find passion, master the skills needed to pursuit passion, learn through trial and error, perfect one's skills, become aware of big ideas, proliferate ideas through leadership and make a global impact. In simpler words, do what you love and outsource what you don't. This approach has led humanity towards ever evolving progress, prosperity and technological marvels. However, it still leaves humanity with winners and losers and we finally have the right tools to improve our story. Instead of doing what we love and outsourcing what we do not, we automate the undesirable. This approach leads us to the tipping point, the transition from type zero to type one civilization (see Kardashev scale), we are moving from human doing to human being.

I will tell you a story, enriched with animated visuals from my experience in leading a half a million-dollar private footwear and apparel company towards automation, by simplifying the product creation process into clean steps, rewritten as algorithms to be fed to machine learning mechanisms on phase one. Next, the machines will breed between digitally human created 3d CAD models, similar to how nature breeds us and everything alive. Finally, bring in artificial intelligence to bridge the gap between creator and benefactor (client) allowing everyone involved to seamlessly influence the product throughout its entire life-cycle. 1. Digitized - we take all physical existing shoes and new ideas and make digital twins (a 3D CAD model that contains all of the material, properties, pricing and production information within one unifying file.)

2. Deceptive - although it takes longer to prepare a digital twin in comparison to traditional shoe making, this twin can be used for more than the end product. It can be used for 3D visualization, presale, AR, VR, MR, Holograms, and other things that we haven't even thought of.

3. Disruptive - when the day comes where additive manufacturing outperforms subtractive manufacturing and when people buy files to make the product rather than the product, the files themselves are the asset. Files are free to transfer, they need a tiny fraction of storage as they live on the cloud, (but we need physical servers somewhere), they are fluid and can adapt to incoming data, (think of custom shoes for every human being that matches each person's foot scan data and so on.

4. Demonetized - as creator tools and shoe knowledge becomes vast and free on the internet. There will be a tsunami of designs flooding the market and most of them will be free for people to download and make at home.

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